

MARITIME HERITAGE MINNESOTA



Ann Merriman
Christopher Olson

Wayzata Bay Wreck National Register of Historic Places Nomination

During the storm on Monday night one of the Lake Minnetonka steamers was tipped over and a barge sunk.

*I have contracted with Walter
for \$5000 for barge 18 ft by
80 ft all all out and
will be good mummy with
earth deck - Timbers 2 1/2 x 5*

Monday night's storm was a lively one at Lake Minnetonka. A barge was sunk and a small steamer was capsized near Wayzata.

© 2015

Ann Merriman, Christopher Olson, and Maritime Heritage Minnesota

Acknowledgments

The Wayzata Bay National Register of Historic Places Nomination is one part of the Lake Minnetonka Multiple Property Documentation Form Project. Maritime Heritage Minnesota (MHM) thanks the People of Minnesota for their support of the Minnesota Historical and Cultural Heritage Grant program, part of the Arts and Cultural Heritage Fund of the Clean Water, Land and Legacy Amendment; without the MHCH Grant MHM received to conduct this project, the work would not have been undertaken. We thank Scott Anfinson and Bruce Koenen of the Office of the State Archaeologist for their efforts in obtaining archaeological reports and research materials. MHM also thanks National Register Archaeologist David Mather for his advice on the organization and content of this document. MHM would also like to acknowledge the Grants Office staff at the Minnesota Historical Society (MNHS) for their assistance. We also thank the staff of the Gale Family Library. While they did not work directly on this project, MHM thanks our volunteer divers who assisted us with the accumulation of data that allowed MHM to complete this document: Josh Knutson, Kelly Nehowig, Ed Nelson, and Mark Slick. MHM acknowledges these talented and ethical men for their time and skill. MHM thanks our Board of Trustees for their constant support: Chair and Commodore Michael F. Kramer, Deb Handschin, and Steve Hack.

Cover: Note written by James J. Hill on letter written from T.J. Patterson to Hill and Acker, 14 March 1876 (James J. Hill Papers); Newspaper accounts (*St. Paul and Minneapolis Pioneer Press* 1879, *St. Paul Globe* 1879).



MINNESOTA HISTORICAL &
CULTURAL HERITAGE GRANTS

© 2015 Ann Merriman, Christopher Olson, and Maritime Heritage Minnesota
MHM IS A 501(c)3 NON-PROFIT CORPORATION DEDICATED TO THE DOCUMENTATION, CONSERVATION,
AND PRESERVATION OF MINNESOTA'S FINITE NAUTICAL AND MARITIME CULTURAL RESOURCES



An 1896 map of Lake Minnetonka; Wayzata Bay is in the upper left corner (John R. Borchert Map Library G4142.M41896.C62x).

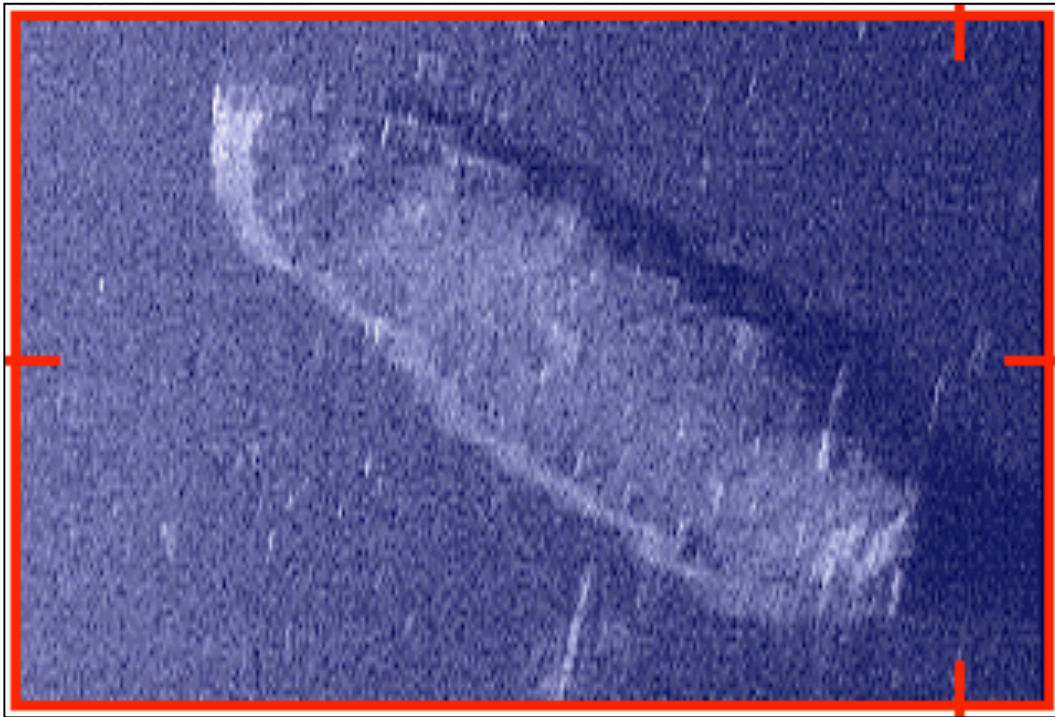
INTRODUCTION

The Wayzata Bay Wreck (21-HE-401) is located in Wayzata Bay, Lake Minnetonka, in the city of Minnetonka, Minnesota. The hull lies on the bottom of the lake surrounded by nearly two feet of anaerobic silt that promotes preservation. The Wayzata Bay Wreck sank in late September 1879 and with its completely intact structure, is the best-preserved model barge wreck in the United States (Merriman and Olson 2013 7-9, 2014, 38).

NARRATIVE DESCRIPTION

Maritime Heritage Minnesota (MHM) recorded a sonar image of the Wayzata Bay Wreck in November 2011 during the Lake Minnetonka Survey 1 Project (LMS-1) and acquired her site number (21-HE-401) from the Minnesota Office of the State Archaeologist (OSA) in December 2011. MHM dove on the wreck in May 2013, June 2014, and June 2015. Her length is 85 feet, her beam is 18.5 feet, her depth of hold is 3.5 feet, and she is a wooden model barge. A model barge is an un-powered vessel that has two pointed (sharp) ends, making her double-ended. She is sturdily built, with longitudinal outer hull planking and large stem and sternposts. Since the hull is double-ended, the distinction between port and starboard, and bow and stern, is determined when the vessel is being towed. The deck has two layers of planking; the lower layer is attached longitudinally and the upper layer is attached athwartships. Six large scarfs connecting several large timbers comprise the gunwale that has a rubrail (sprung in places) attached by iron bolts. Four large cleats are attached to the gunwale amidships on either side of the hull, although one cleat is missing - a large mounting U-bolt is a

surviving remnant. Metal straps for reinforcement of the outer hull are also located at the cleat sites, indicating a great need for a strong hull at these attachment points. There are four hatches cut into the deck surrounded by combing, two at either end of the wreck. At both ends of the wreck on the centerline, two large H-bitts protrude through the hull. At the very center of the deck, a longitudinally placed block would have held a stanchion for a hogging chain. The west end of the wreck has slight damage, suggesting this end hit the bottom of the lake first and took the brunt of the wrecking stress. Due to this slight damage, futtocks on one side have been exposed and missing hatch combing has exposed a deck beam and clamp. These areas provide an opportunity to investigate the inner hull and record construction attributes without harming the wreck (Merriman and Olson 2012, 39, 2013 7-11, 2014, 38).



A sonar image of the Wayzata Bay Wreck (MHM).



One end of the Wayzata Bay Wreck showing a stem/sternpost and an H-bitt (Ed Nelson).



One of the wreck's H-bitts (Mark Slick).



The ends of the Wayzata Bay Wreck has substantial stemposts/sternposts. The post on the right is intact while the other is degraded (left photo by Mark Slick, right photo by Kelly Nehowig).



One end of the Wayzata Bay Wreck that gives an impression of the vessel's beam (Mark Slick).



One of the wreck's hatches (Kelly Nehowig).



One of the gunwale scarfs (Mark Slick).



One of the three surviving cleats attached to the wreck's gunwale (Kelly Nehowig).



Metal straps that provided extra rigidity to the hull are found near the cleats (Mark Slick).



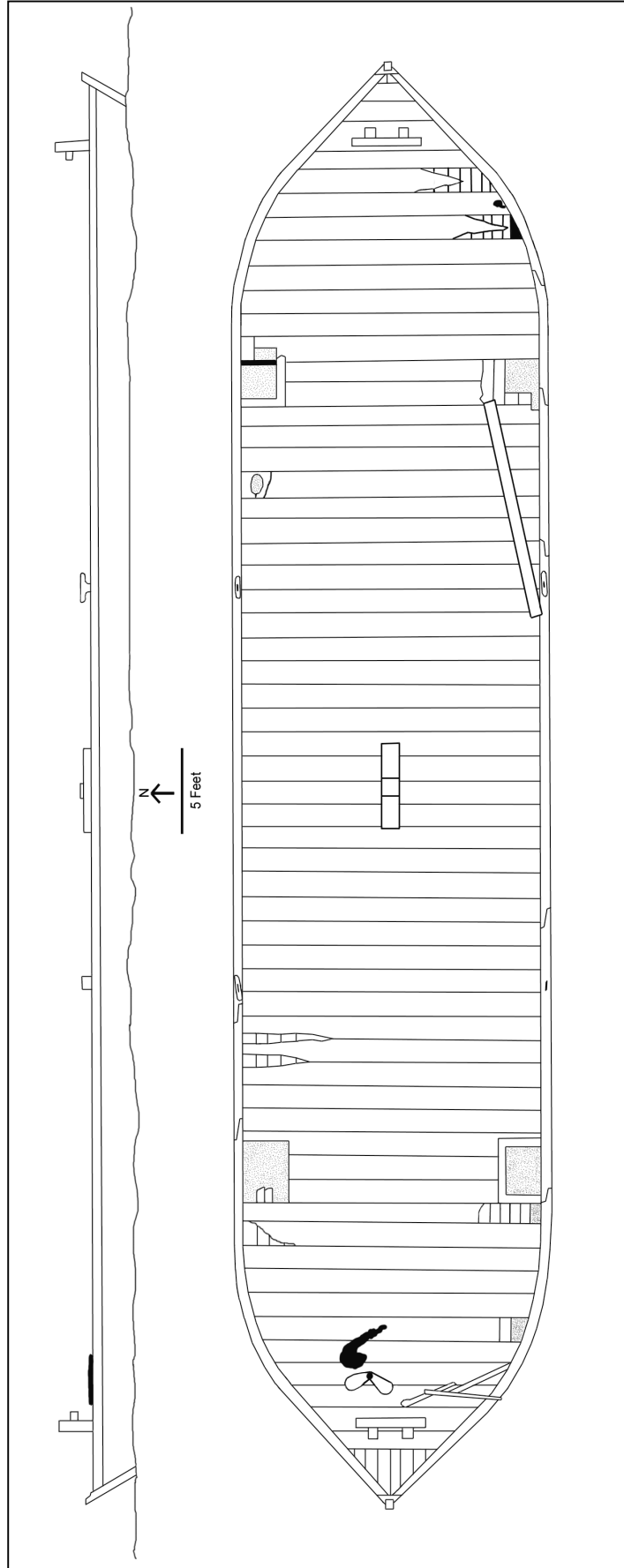
The centerline base that may have held a stanchion used to support hogging chains (Kelly Nehowig).



Details of the wreck's inner hull, looking into a deck hatch, showing futtocks and the clamp (Mark Slick).



The wreck's sturdy, heavy, two-layered deck has longitudinal planking below athwartships planking (Mark Slick).



A profile and plan view of the Wayzata Bay Wreck (Christopher Olson).

MHM determined that the Wayzata Bay Wreck sank on September 30, 1879: "Monday night's storm was a lively one at Lake Minnetonka. A barge was sunk and a small steamer was capsized near Wayzata" (*St. Paul Globe* 1879). Another account noted, "During the storm Monday night one of the Lake Minnetonka steamers was tipped over and a barge sank" (*St. Paul and Minneapolis Pioneer Press* 1879). MHM ascertained the Wayzata Bay Wreck is the barge that sank during that violent storm, particularly since the completely reviewed sonar footage recorded in 2011 revealed no other barges on the bottom of the bay and her construction is consistent with barges from that era. The wreck's open hatches facilitated the inclusion of the Wayzata Bay Wreck in an ongoing sediment build-up of study MHM has been conducting in Lake Minnetonka. In mid-June 2014, MHM returned to the wreck site and determined the sediment build-up in the hull of the wreck measured 16 inches, an accumulation rate of .12 inches per year. This small number indicates that water moving through Wayzata Bay on its way to the Grays Bay outlet is moving quickly and very little silt settles out in the process (Merriman and Olson 2014, 38).

Monday night's storm was a lively one at Lake Minnetonka. A barge was sunk and a small steamer was capsized near Wayzata.

The Wayzata Bay Wreck's September 30, 1879 sinking was noted in *St. Paul* (*St. Paul Globe* 1879).

MHM's nautical archaeological and maritime historical investigations of the Wayzata Bay Wreck have revealed the incredible condition of one of only three known model barge archaeological sites in the United States. Lake Minnetonka's cold, fresh water has insured the preservation of all of the vessel's structural components. In addition to the rarity of this type of site, the Wayzata Bay Wreck is the only site of its type found in a lake. The Wayzata Bay Wreck retains extraordinary integrity because the wreck is intact, in place, and the bottom and inner hull are encased in cold anaerobic silt for outstanding preservation.

STATEMENT OF SIGNIFICANCE

The Wayzata Bay Wreck meets the National Register of Historic Places (NRHP) registration requirements for Criteria C and D at the State Level as described in the Multiple Property Documentation Form, "Wrecks and Submerged Cultural Resources of Lake Minnetonka, Minnesota (BC 9500 - AD 1965)". The wreck site is a significant property within the Lake Minnetonka Context – Post-Contact Period (A.D. 1837 to 1945) – further defined under the Thematic Context of "Railroads & Agricultural Development (1867-1940)," within Associated Property Type Wooden Properties: Wrecks, W5.1 Wooden Barges, Identified Wreck Design Model Barge (Merriman and Olson 2015). The amount of nautical archaeological and maritime historical data already accumulated about the Wayzata Bay Wreck is significant, and with further fieldwork more information will be gathered. The presence of an intact model barge is a one-of-a-kind *in situ* opportunity to examine the exact construction of a work boat type that operated on Lake

Minnetonka between 1876 and 1879 - and is one of only three surviving examples in the United States (see below).

Historical Contexts of Model Barges

Model barges were characterized as the "pride of the western boatman...these boats excite in a remarkable manner the enthusiasm of the river men" (Hall 1884, 184). An early reference to model barges indicates they were constructed in Tennessee and used on the western river system by 1864 during the Civil War (Schofield 1868, 116). By the late 1870s, dozens of model barges were utilized to carry bulk goods in Cincinnati. For example, in 1876, of a recorded 316 vessels that arrived in Cincinnati, 71 of them were model barges (Merrill 1877, 661). It must be noted that those 71 model barges were paired up with several steamers to move them; a steamer could move up to six model barges down a river at the same time. In the early 1880s, model barges were constructed in Pittsburgh and Freedom, PA, Cincinnati, Jeffersonville, IN, and at numerous locations on the Ohio River. These vessels were used on the Ohio and Mississippi Rivers as bulk carriers with cargoes of grain, railroad iron, iron ore, tile, and other commodities. These barges ranged from 100 feet to 238 feet long, 30 to 30.5 feet in the beam, depths of hold between 6 and 9 feet, and had a hogging truss down their centerlines supported by stanchions. The pointed stern was referred to as a 'pinkie' (Hall 1884, 184-186), a trait that would only be recognized when the model barge was being towed or pushed by a steamer. On the Mississippi River in the late 1890s, large model barges were found among dozens of other vessel types as floating stock belonging to the US Army Corps of Engineers (USACE), between St. Paul and the mouth of the Missouri River north of St. Louis (Durham 1899, 2158). At times, after inspections of supply depots and the equipment associated with them were completed, floating stock would be intentionally sunk by the USACE. On one occasion, 12 barge flats and one model barge did not pass inspection and were condemned. It was "proposed to replace them by an equal number of well-built model barges" (Ernst 1884, 1415). The suggestion to replace the barge flats with model barges is an indicator that this type was preferred over other barge designs, when given a choice.

Evidence has been found to explain why only 2 partial model barge wrecks (see below), beyond the Wayzata Bay Wreck, are the only examples of this vessel type to survive in the archaeological record: snag boat removal of sunken obstructions in rivers. One report of this enterprise differentiated the vessel types removed from the Ohio river that included "9 steamboats, 29 wreck (coal boats, barges, and flats), 2 model barges, 1 square barge, 1 wharf boat, 1 ferry boat, [and] 1 boom boat...were removed from the river proper" (Bixby 1899, 2341). Unfortunately, not all model barges were recognized as such in the historical record. One example of this situation is the *James R. Young* out of Prairie du Chien, WI. Known from pictorial evidence (see photo below), *James R. Young* is a model barge that worked the Mississippi River to James J. Hill's warehouse landing in St. Paul. In the 1868 *List of Merchant Vessels* (commonly known as the Merchant Vessel List, MVL), the *James R. Young* is identified as a canal boat, not a model barge (MVL 1869, 305). With this issue known, the number of model barges that plied the country's rivers - and lakes - cannot be ascertained. However, model barges were regularly used by riverboatmen as a bulk carrier and was favored by general freight carriers. Model barges did not carry coal, a product that headed downriver only, and the upriver trade required:

the use of barges superior both in design and construction to those used in the coal trade. They were not only more strongly and carefully built, but, in the interest of faster trips and easier upstream propulsion, their hulls were modeled fore and aft like a steamboat hull. When intended to handle grain in bulk or package freights, the model barge was supplied with a cargo box and roofed over. The tows were smaller than those in the coal trade and seldom consisted of more than five or six barges (Hunter 1949, 578).

The model barge as a type had a reputation for being strong, capable, and durable, and they moved through the water more easily than barges of other designs. During the break-up of the Mississippi Squadron after the Civil War, model barges specifically were relied upon to transport heavy mortars on the river. The strong deck beams and planks, hallmarks of model barge design, were cited by Navy personnel as crucial to the safe transport of heavy ordnance (Lee 1865a, 292, 1865b, 298).

Operational History of the Wayzata Bay Wreck

St. Paul businessman James J. Hill was familiar with model barges from his work with different Mississippi River transportation firms in St. Paul. Hill established his warehouse and transportation agency in February 1866, entering into an agreement with the First Division of the St. Paul and Pacific Railroad to act as a forwarding and commission agent from his riverbank warehouse (Articles of Agreement 1866). Pictorial evidence dated to 1868-1870 depicts model barges moored at Hill's warehouse and at other spots along the levee. The model barge Wayzata Bay Wreck began its working life under the ownership of Hill and George S. Acker, operated by their company Hill & Acker. The model barge was transferred to Hill's subsidiary, the Northwestern Fuel Company, owned by Hill, Acker, and their partner Edward N. Saunders, in 1877.



Two model barges at James J. Hill's St. Paul warehouse in 1868-1869 (MNHS MR2.9SP4.3p3, digitized by MHM).



The model barge *James R. Young*, loaded with cord wood, moored at James J. Hill's warehouse in St. Paul along with two other model barges in the background in the late 1860s. The steamers are *Canada* and *Diamond Jo* (MNHS MR2.9SP4.3r60, digitized by MHM).

Hill partnered with Acker, President of the First Division of the St. Paul and Pacific Railroad (FDStPPR), by May 1875 to expand his business interests west of St. Paul, establishing the firm of Hill & Acker. Hill & Acker struck a deal with John A. Armstrong in Minneapolis and together, these men developed a commercial interest in the Lake Minnetonka area. In December 1875, the large timber stands of 'The Big Woods' came to Hill's attention through reports from the FDStPPR. These vast tracts of timber were being exploited to produce fuel for railroad locomotive boilers and for residential consumption between Darwin and Long Lake, and into Minneapolis and St. Paul (Hill & Acker 1875a, 1875b, 127).

Beginning in mid-January 1876, Hill & Acker contracted with and searched for bids from boatwrights to construct wooden barges that would be used to transport cord wood on Lake Minnetonka. A vague diary entry, kept while Hill was traveling west of the Twin Cities purchasing cord wood, stated "Paul began work on wood barges" (Hill 1876a). Two weeks later, Hill & Acker wrote to J.P. Torrey of Carver requesting a quote because they wanted "to build one or two barges on Lake Minnetonka this spring and soon will have to begin at it" (Hill & Acker 1876a, 237). In March, Hill & Acker also sought input about Lake Minnetonka barge construction from T.J. Patterson of Rockford while the firm decided how many vessels were required, and how large they needed to be. Hill & Acker, with input from Armstrong, decided the barges should be 75 feet long and 18 feet in the beam. In the end, Hill & Acker informed Patterson that they had "contracted with a party for a barge 18 ft by 80 ft over all, to be built entirely of oak and in good workmanlike manner. Timbers 2 1/2 x 5 with Earth decks & to be completed & in the water by the 1st day of May 1876 - for \$500.0. Please let us know whether you will take a contract at same figure for same kind of a barge". The aforementioned 'party' appears

to be a man named Walters, but attempts to determine his full name and the location of his boat building business have not been successful (Hill & Acker 1876b, 303, 1876c, 309, 1876d, 340; Patterson 1876). Therefore, the Wayzata Bay Wreck is the barge constructed by 'Walters' or is another boat of the same description built by Patterson later, if he agreed to take on the job. The five foot length discrepancy between the wreck and the barge built by Walters could be explained by the boat builder constructing a vessel with an 80 foot keel and an 85 foot long hull overall. Or, the vessel was simply constructed to be five feet longer than the original specifications; this type of discrepancy has been seen in the maritime historical record.



A model barge moored at James J. Hill's Mississippi River warehouse in St. Paul around 1875 (MNHS MR2.9SP4.3r9, digitized by MHM).



A model barge loaded with cord wood on the port side of the steamer *Montana* at the St. Paul Levee around 1870 (MNHS HE5.11Mp10, digitized by MHM).

Thousands of cords of maple, oak, and bass wood were being acquired on Lake Minnetonka, a task undertaken by Hill & Acker agents J.H. Pearl and then Henry C. Carlisle in Mound City on the Upper Lake beginning in winter 1876. This commodity was banked by several sources for collection after ice-out and during the summer and autumn. Correspondence mentions competition by "Germans cutting small Lots of wood for Chaska" and the names of numerous "Choppers" who were given bank drafts for their efforts and cord wood stores. Various letters also mentioned particular wood-cutting locations such as Crystal Bay and Starvation Point (now called Brackett's Point). Pearl and Carlisle also operated stores in Mound City and Maple Plain to serve Lake Minnetonka area residents, with goods provided by Hill & Acker, and then Hill, Saunders, & Acker (Pearl 1876a-k; Carlisle 1876).



An 1856-1859 view of Wayzata Bay toward Spirit Island and Spirit Knob before settlement and timber clearing (Edwin Whitefield, MNHS AV1995.141.29).



Town of Wayzata looking onto Wayzata Bay to Spirit Know and Spirit Island in 1870, cleared of timber and with gardens planted (MNHS MH5.9 WY1 r7).

Additionally, Hill & Acker purchased land on Lake Minnetonka to solidify their presence; whether this land was in Wayzata near the railroad line or somewhere else on the lake has yet to be determined (Hill & Acker 1876e, 346). Obviously the barges constructed for Hill & Acker required another boat to move them around Lake Minnetonka. The firm approached boatwright Josiah Batchelder of Hudson, WI, to build a steamer - a tug boat - for this purpose on site at the lake (Hill & Acker 1876f, 409, 1876g, 423). Batchelder assured them he could build the boat in Hudson, and he would "build as cheap and as good a boat as any one. There would be no trouble in sending such a boat on the cars and I have a shop large enough to build such a boat in" (Batchelder 1876a, 1876b). Hill & Acker accepted his \$500.00 quote to construct a steamer 40 feet long and 9 feet in the beam and Batchelder agrees to their terms and specifications (Hill & Acker 1876h, 446; Batchelder 1876c; Hill 1876b). During the construction of the steamer, Batchelder requested supplies (such as oakum and nails) from Hill & Acker, as well as two ship carpenters, be sent to Hudson. Batchelder communicated regularly with Hill & Acker about decking, requested oakum be sent to him, and complained that no carpenters were coming his way. Regardless of the lack of help, Batchelder completed the steamer by the end of May and prepared it for shipping on a railroad car to Lake Minnetonka (Batchelder 1876d-f). William J. Sanderson of Syracuse, NY, manufactured the steamer's engine and boiler to Hill & Acker's specifications (Sanderson 1876a-b), and Batchelder told Hill & Acker he could get to Lake Minnetonka to help with the machinery installation, but he needed to be paid the balance on the steamer's hull first (Batchelder 1876g).

By the end of June 1876, Hill & Acker reported that "Our little boat is launched and ready for the boiler", and they asked Batchelder if he could travel to Lake Minnetonka to fit out the tug with its sternpost towing bits, hatch combing, and cabin roof (Hill & Acker 1876i, 134, 1876j, 148). The tug's name was '76 and she began moving barges around the lake by August 1876. One interesting incident occurred in mid-August concerning a late train and an on-time tug and barge. The tug, with a large cargo on its barge, arrived in Wayzata but there was no train awaiting them. The barge's cargo - cord wood - needed to be off-loaded onto the ground instead of directly onto a rail car. Armstrong expressed great irritation at the additional time and labor cost of this extra step in the transfer process; it decreased Hill & Acker's profits (Armstrong 1876; McGinnis 2010, 1).

The tug and barge transportation business must have been good because in late August, Hill & Acker hired John Irish to construct another barge at Wayzata. This boat was of a different design than the Wayzata Bay Wreck, since it was described as having "a flatboat bow and stern...Mr. Irish wants all the plank jointed at the Mill before it is shipped - Will you aid him in selecting what he wants and help hurry it out to Wayzata - Have the barge 19 ft beam & 100 ft long". This document is helpful since the Hill & Acker partners recognized the difference between 'flatboat bow and stern' vessels (raked scow ends) and model barges (double pointed ends). Additionally, while the beam of this barge is close to that of the Wayzata Bay Wreck, the length of the watercraft is 15 feet longer. In early September 1876, Hill & Acker boasted to engine and boiler maker Sanderson about the speed his equipment was providing their enterprise: "We have towed a barge with 50 cds [cords] Maple wood six miles across the Lake in a few minutes less than an hour and have towed two barges same size loaded at rate of four to four and half miles an hour" ((Hill & Acker 1876k, 308, 1876l, 324).

In 1877, Hill & Acker became the Northwestern Fuel Company (NFC) when Saunders joined the company, and the movement of wood continued across the lake continued. Interestingly, with the increase in Lake Minnetonka tourism by summer 1878, the NFC equipment was drafted to assist with pleasure excursions in early August 1878 when "the tug '76 and a large barge were loaned by the N. W. Fuel Co....the barge had been filled with seats and covered with a roof of green boughs, which made it comparatively comfortable" (*Tourist and Sportsman* 1878). A photograph of '76 and a square-ended barge with raked scow ends exists, with the roof of green boughs clearly seen.



Above: Tug '76 and a scow-ended barge decorated for an excursion party in 1878, as described above (MNHS Album 111, #5, digitized by MHM).

Right: A few years after Hill & Acker, and then the Northwestern Fuel Company, began efforts to clear Lake Minnetonka of timber, the port of Wayzata was bustling with activity. Several large steamers provided excursions and transportation, and Hill's locomotives met the boats on schedule in 1880 (MNHS HE5.13 r68).



REGISTRATION REQUIREMENTS AND SIGNIFICANCE

The Wayzata Bay Wreck meets the NRHP registration requirements for Criteria C (Archaeology) and D (Archaeology, Maritime History) as described in the Multiple Property Documentation Form, "Wrecks and Submerged Cultural Resources of Lake Minnetonka, Minnesota (BC 9500 - AD 1965)". The wreck site is a significant property within the Lake Minnetonka Context – Post-Contact Period (A.D. 1837 to 1945) – further defined under the Thematic Context of "Railroads & Agricultural Development (1867-1940)," within Associated Property Type Wooden Properties: Wrecks, W5.1 Wooden Barges, Identified Wreck Design Model Barge (Merriman and Olson 2015).

Archaeology

Despite the popularity of model barges in the late 19th and early 20th Centuries, there are only two other known examples of this artifact type in the American archaeological record, located in 1988 during extreme low water conditions in the Mississippi River in Arkansas. These wrecks are part of the West Memphis Boat Wrecks Site (3CT243), a group of six wrecks and other hull pieces that could not be assigned a particular context. Of these six wrecks, two model barges were designated Vessel No. 1 and

Vessel No. 5. The archaeologists documenting 3CT243 surmised the two models barges might have been part of the US Army Corps of Engineers (USACE) Dredge Fleet headquartered nearby. Their function was to transport stone for rip rap operations and haul heavy machinery. Vessel No. 1 was considered to be "in extraordinary shape" for being in a dynamic river environment. None of Vessel No. 1's deck survived, her gunwale is missing, one end's outer hull planking is gone, but her stem/stern posts exist and her bottom is intact (Stewart-Abernathy 2002, 172-174; Saltus and Stewart-Abernathy 2002, 102-118; Stewart-Abernathy and Saltus 2002, 139, 141). Considering that Vessel No. 1 is in extraordinary condition, the Wayzata Bay Wreck is in superlative condition, a state that can be attributed to the cold, fresh, relatively non-dynamic water of Lake Minnetonka.

The Wayzata Bay Wreck is an exceptional example of American model barge construction; the wreck exhibits all of the nautical structural components one would expect to find incorporated into a model barge (Criterion C). The presence of the two pointed ends, double-planked deck, strong thick athwartships deck timbers, H bitts, thick clamps, heavy cleats, evidence of a hogging truss, and a sturdy gunwale are trademarks of model barge construction. Further, as the only known intact version of this wreck type, its survival has already yielded information important to nautical archaeology (Criterion D). Further underwater archaeological reconnaissance on the Wayzata Bay Wreck will occur to answer specific questions about particular construction attributes; due to site conditions (water depth, relatively small amount of silt accumulation), no wreck disturbance will occur.

Maritime History

The Wayzata Bay Wreck was appropriate for the same type of work - bulk cargo carrying - on Lake Minnetonka that Vessels No. 1 and 5, mentioned above, performed on the Mississippi River. The Wayzata Bay Wreck was a tool that participated in the clearance of timber around Lake Minnetonka. This deforestation supplied fuel in the form of cord wood to operate steam locomotives and for residential use. Additionally, a secondary consequence of this commercial activity was the clearing of land for settlement, construction, and farming. Today, for maritime history, the Wayzata Bay Wreck represents the talent of local boatwrights who had the knowledge necessary to construct a model barge to particular specifications. The Wayzata Bay Wreck, as a model barge, has distinctive attributes of the type; as a type, model barges were significant in American maritime history from 1860-1920. In the case of the Wayzata Bay Wreck and the maritime history of Lake Minnetonka, 1876-1879 (Criterion C).

Because of the rarity of model barges in the archaeological record, and the lack of naval architectural plans that have survived in the historical record, the Wayzata Bay Wreck is a blueprint that represents model barges and from which a plan can be produced (Criterion D).

BIBLIOGRAPHY

- Armstrong, John A. 1876. *Letter to Hill & Acker, 13 August*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- Articles of Agreement. 1866, 6 February. First Division of the St. Paul and Pacific Railroad and James J. Hill. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- Batchelder, Josiah. 1876a. *Letter from Josiah Batchelder to Hill & Acker. April 16*. James J. Hill Papers: St. Paul, MN.
- _____. 1876b. *Letter from Josiah Batchelder to Hill & Acker. April 20*. James J. Hill Papers: St. Paul, MN.
- _____. 1876c. *Letter from Josiah Batchelder to Hill & Acker. April 25*. James J. Hill Papers: St. Paul, MN.
- _____. 1876d. *Letter from Josiah Batchelder to Hill & Acker. May 3*. James J. Hill Papers: St. Paul, MN.
- _____. 1876e. *Letter from Josiah Batchelder to Hill & Acker. May 11*. James J. Hill Papers: St. Paul, MN.
- _____. 1876f. *Letter from Josiah Batchelder to Hill & Acker. May 29*. James J. Hill Papers: St. Paul, MN.
- _____. 1876g. *Letter from Josiah Batchelder to Hill & Acker. June 2*. James J. Hill Papers: St. Paul, MN.
- Bixby, W. H. 1899. Operating Snag Boat on the Ohio River, Report of the Chief of Engineers, U.S. Army, Part 3, in *Annual Reports of the War Department*. Government Printing Office: Washington, DC.
- Carlisle, Henry C. *Letter to Hill & Acker, 16 September*. James J. Hill Papers: St. Paul, MN.
- Durham, C.W. 1899. Report of Mr. Durham, Assistant Engineer, on Plant, February 15, Report of the Chief of Engineers, U.S. Army, Part 3 in *Annual Reports of the War Department*. Government Printing Office: Washington, DC.
- Ernst, O.H. 1884. Improvement of Mississippi River Between the Mouths of the Illinois and Ohio Rivers in *Annual Report of the Chief of Engineers, United States Army, to the Secretary of War, for the Year 1884*. Part II. Government Printing Office: Washington, DC.
- Hall, Henry. 1884. *Report on the Ship-Building Industry of the United States*. Government Printing Office: Washington, DC.

Hill, James J. 1876a. *Diary, 14 January* 14. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.

_____. 1876b. *Letter George S. Acker, May 2*. James J. Hill Papers: St. Paul, MN.

Hill & Acker. 1875a. *Letter to C.M. Underhill, May 3*. James J. Hill Papers: St. Paul, MN.

_____. 1875b. *Letter to E.Q. Sewall, December 20*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876a. *Letter to J.P. Torrey, 1 February*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876b. *Letter to T. Patterson, 7 March*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876c. *Letter to T. Patterson, 11 March*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876d. *Letter to T.J. Patterson, 17 March*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876e. *Letter to John A. Armstrong, 21 March*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876f. *Letter to Josiah Batchelder, 6 April*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876g. *Letter to Josiah Batchelder, 15 April*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876h. *Letter to Josiah Batchelder, 22 April*. Letterpress Book B4. James J. Hill Papers: St. Paul, MN.

_____. 1876i. *Letter to Josiah Batchelder, 29 June*. Letterpress Book B5. James J. Hill Papers: St. Paul, MN.

_____. 1876j. *Letter to Josiah Batchelder, 1 July*. Letterpress Book B5. James J. Hill Papers: St. Paul, MN.

_____. 1876k. *Letter to John A. Armstrong, 31 August*. Letterpress Book B5. James J. Hill Papers: St. Paul, MN.

_____. 1876l. *Letter to W.J. Sanderson, 5 September*. Letterpress Book B5. James J. Hill Papers: St. Paul, MN.

Hunter, Louis C. 1949. *Steamboats on the Western Rivers: An Economic and Technological History*. Reprint 1977. Dover Publications, Inc.: New York, NY.

Lee, S. P. 1865a. July 15. Letter from Acting Rear Admiral S. P. Lee to Lieutenant-Commander Cornwell in *Official Records of the Union and Confederate Navies in the War of the Rebellion*. Series 1, Vol. 27. Washington, DC: Government Printing Office, 1917.

_____. 1865b. July 18. Letter from Acting Rear Admiral S. P. Lee to Pilot French in *Official Records of the Union and Confederate Navies in the War of the Rebellion*. Series 1, Vol. 27. Washington, DC: Government Printing Office, 1917.

List of Merchant Vessels of the United States. 1869. Government Printing Office: Washington, DC.

McGinnis, Scott. 2013. *A Directory of Old Boats*. Scott D. McGinnis: Chaska, MN.

Merrill, William E. 1877. Letters of Major William E. Merrill, Corps of Engineers, July 3, Report of the Chief of Engineers in *Report of the Secretary of War*. Vol. II, Part I. Government Printing Office: Washington, DC.

Merriman, Ann, and Christopher Olson. 2012. *Lake Minnetonka Survey 1 Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

_____. 2013. *Lake Minnetonka Nautical Archaeology 1 Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

_____. 2014. *Lake Minnetonka Nautical Archaeology 3 Project Report*. Maritime Heritage Minnesota: St. Paul, MN.

_____. 2015. *Wrecks and Submerged Cultural Resources of Lake Minnetonka, Minnesota (BC 9500 - AD 1965)*. Multiple Property Documentation Form. Maritime Heritage Minnesota: St. Paul, MN.

Patterson, T.J. 1876. *Letter to Hill & Acker, 14 March*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.

Pearl, J.H. 1876a. *Letter to Hill & Acker, 24 January*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.

_____. 1876b-c. *Letter to Hill & Acker, 13 February [2 letters]*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.

_____. 1876d. *Letter to J.A. Armstrong, 15 February*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.

_____. 1876e *Letter to Hill & Acker, 17 February*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.

_____. 1876f. *Letter to J.A. Armstrong, 21 February*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.

- _____. 1876g *Letter to Hill & Acker, 26 February*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- _____. 1876h *Letter to Hill & Acker, 2 March*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- _____. 1876i *Letter to Hill & Acker, 9 March*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- _____. 1876j *Letter to Hill & Acker, 6 May*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- _____. 1876k. *Letter to Hill & Acker, 28 July*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- St. Paul and Minneapolis Pioneer Press*. 1879, 1 October.
- St. Paul Globe*. 1879, 1 October.
- Saltus, Jr., Allen, and Leslie C. Stewart-Abernathy. 2002. The Model Barge and Other Vessels in *Ghost Boats on the Mississippi: Discovering Our Working Past*. Arkansas Archeological Survey Popular Series 4: Fayetteville, AR, 102-129.
- Sanderson, William J. 1876a. *Letter to Hill & Acker, 14 May*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- _____. 1876a. *Letter to Hill & Acker, 20 May*. James J. Hill Papers. Minnesota Historical Society: St. Paul, MN.
- Schofield, J. M. 1868. Letter from the Secretary of War in *Vessels Bought, Sold, and Chartered by the United States*. House of Representatives, 20th Congress, 2nd Session, Ex. Doc. No. 337: Washington, DC, 1-227.
- Stewart-Abernathy, Leslie C. 2002. Appendix A. Catalog of Major Wreck Pieces at 3CT243 in *Ghost Boats on the Mississippi: Discovering Our Working Past*. Arkansas Archeological Survey Popular Series 4: Fayetteville, AR, 172-174.
- Stewart-Abernathy, Leslie C., and Allen Saltus, Jr. 2002. Why These Wrecks, Here in *Ghost Boats on the Mississippi: Discovering Our Working Past*. Arkansas Archeological Survey Popular Series 4: Fayetteville, AR, 130-156.
- Tourist and Sportsman*. 1878. 3 August.